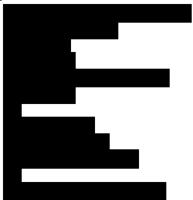
Fate Report for Case # P-18-0227

Fate Summary Statement

Fate P-18-0227

Summary FATE:

Statement:



POTW removal (%) = 95-99.9 via

sorption and biodeg

Time for complete ultimate aerobic biodeg =

wk

Sorption to soils/sediments = low

PBT Potential: P1B1

*CEB

FATE: Migration to ground water = negl

Bioconcentration factor to be

put into E-FAST: NA

PMN Material:

Overall wastewater treatment

removal is 95-99.9% via biodegradation.

Sorption to sludge is low

based on the high measured water solubility and estimated

physical-chemical properties from EPISUITE.

Air Stripping

(Volatilization to air) is negligible based on estimated physical-chemical properties from EPISUITE.

Removal by biodegradation in wastewater

treatment is high based on measured analog data (Glucitol, CASRN 50-70-4:

100% HPLC, 94% TOC and 82% by BOD; Calcium Gluconate, CASRN 299-28-5: 100%

by HPLC, 98% by TOC and 79% by BOD).

Destruction of the substance in

wastewater treatment is complete based on measured analog data (Glucitol,

CASRN 50-70-4: 100% HPLC, 94% TOC and 82% by BOD; Calcium Gluconate, CASRN

299-28-5: 100% by HPLC, 98% by TOC and 79% by BOD).

The aerobic

aquatic biodegradation half-life is weeks based on measured analog data

(Glucitol, CASRN 50-70-4: 100% HPLC, 94% TOC and 82% by BOD; Calcium Gluconate, CASRN 299-28-5: 100% by HPLC, 98% by TOC and 79% by BOD).

The anaerobic aquatic biodegradation half-life is weeks based on the aerobic biodegradation half-life. The anaerobic biodegradation half-life is projected to be greater than or equal to the aerobic biodegradation half-life.

Sorption to soil and sediment is low based on the

high measured water solubility and estimated physical-chemical properties from EPISUITE.

Migration to groundwater is negligible, mitigated by

biodegradation.

PMN Material:

Low Persistence (P1) is based on

the aerobic and anaerobic biodegradation half-lives.

Low

Bioaccumulation potential (B1) is based on BCFBAF model estimates.

Bioconcentration/Bioaccumulation factor to be put into

E-Fast: N/A (the chemical is expected to be processed in fish as it is a naturally occurring sugar).

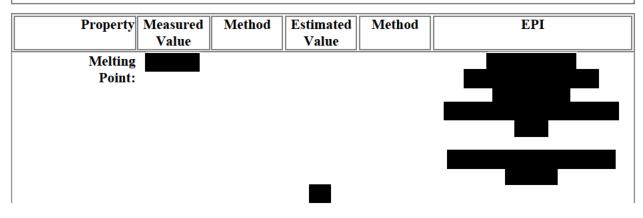
Fate Tobias, David

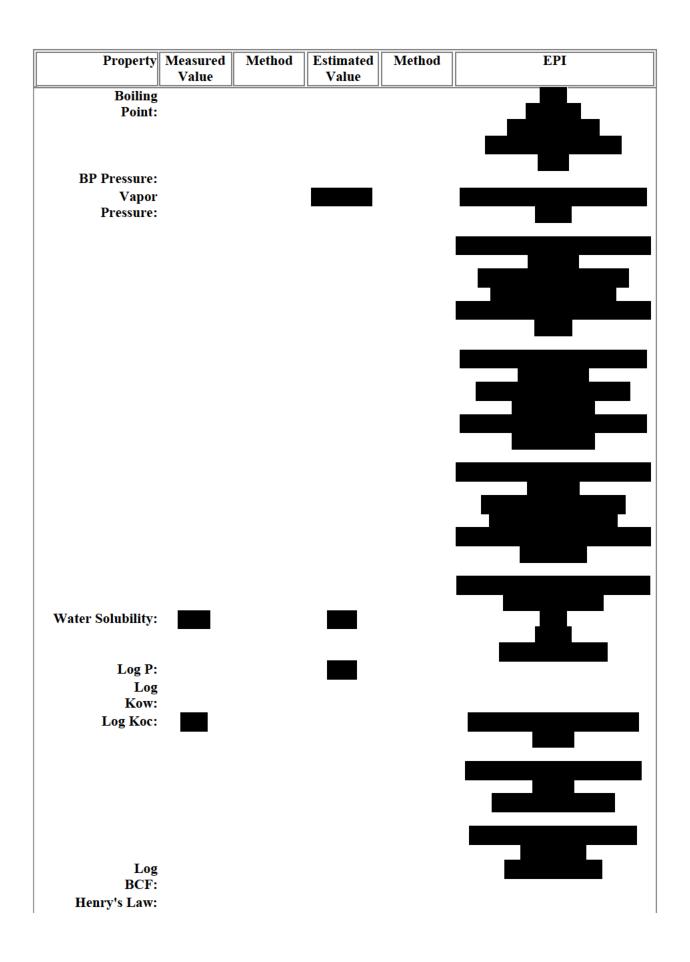
Assessor:

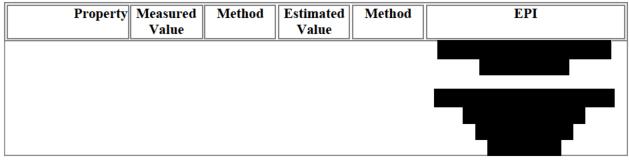
SMILES: OC(=O)C(O)C(O)C(O)C(O)C(=O)O

Physical Properties

Property	Measured/Calculated Value	EPI
Molecular Form:	C6	II .
	H10 O8	
Molecular	210.14	
Wt.:		
% < 500 :		
%		
< 1000:		

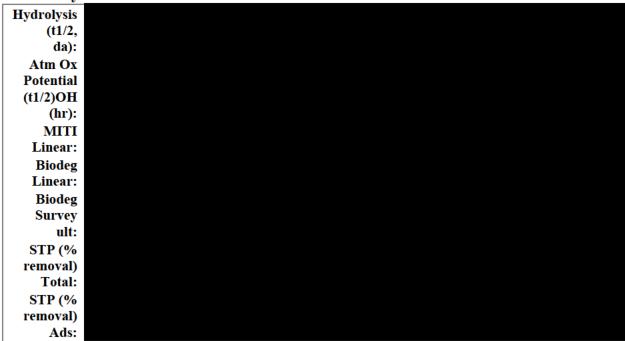






pH: pH Comment:

Fate Analysis



Rationales

Removal in
Wastewater
Treatment:
Atmospheric
Oxidation:
Hydrolysis:
Photolysis:
Aerobic
Biodegradation:
Anaerobic
Biodegradation:

Sorption	
to Soil and	
Sediment:	
Migration to	
Groundwater:	
Persistence - Air:	
Persistence	
- Water:	
Volatilization from	
Water:	
Soil:	
Sediment:	
Other:	
Standard:	
Bioaccumulation:	

PBT Ratings

Persistence	Persistence Bioaccumulation		PBT Comments
1	1		

Exposure-Based Testing

Exposure-Based	
Testing:	

Fate Ratings Removal in WWT/POTW (Overall):

Removal in 95-99.9 WWT/POTW

(Overall):

Condition	Rating Values	Rating Description				Comment
		1	2	3	4	
WWT/POTW	1	Low	Moderate	Strong	V. Strong	
Sorption:						
WWT/POTW	4	Extensive	Moderate	Low	Negligible	
Stripping:						
Biodegradation	2	Unknown	High	Moderate	Negligible	
Removal:						
Biodegradation	2	Unknown	Complete	Partial	_	
Destruction:						
Aerobic	-	<=	Weeks	Months	>	
Biodeg Ult:		Days			Months	
Aerobic Biodeg		<= Days	Weeks	Months	>	
Prim:					Months	
	2	<= Days	Weeks	Months		

Condition	Rating Values	Rating Description				Comment
		1	2	3	4	
Anaerobic Biodeg					>	
Ult:					Months	
Anaerobic Biodeg		<= Days	Weeks	Months	>	
Prim:					Months	
Hydrolysis (t1/2 at		<=	Hours	Days	>=	
pН		Minutes			Months	
7,25C) A:						
Hydrolysis (t1/2 at		<=	Hours	Days	>=	
pН		Minutes			Months	
7,25C) B:						
Sorption to	4	V.	Strong	Moderate	Low	
Soils/Sediments:		Strong				
Migration to	1	Negligible	Slow	Moderate	Rapid	
Ground Water:						
Photolysis A,		Negligible	Slow	Moderate	Rapid	
Direct:						
Photolysis B,		Negligible	Slow	Moderate	Rapid	
Indirect:						
Atmospheric Ox A,		Negligible	Slow	Moderate	Rapid	
OH:						
Atmospheric Ox B,		Negligible	Slow	Moderate	Rapid	
O3:						

Bio

Comments:

Bio The diacid structure drawn

Comments: represents the solid form of the PMN material. In aqueous solution, the substance exists as the diacid in equilibrium with lactone forms (such as OC(=O)C(O)C1C(O)C(O)C(=O)O1). This equilibrium is transient in nature, incidental to storage of the aqueous solutions, and has no commercial purpose. In addition, the end use of the aqueous solution will generally push the equilibrium back to the diacid form.

A fate study summary is available. Fugacity calculations are available. Fish log BAF = -0.05

(1).

The fugacity spreadsheet and the EPI output file for the PMN material with manually entered properties are

Fate Comments:

Fate Comments:

Comments/Telephone Log

attached.

Comments/Telephone Log					
Artifact	Update/Upload				
	Time				

Artifact	Update/Upload Time		